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ADDITIONS TO THE JAPANESE LAND SNAIL FAUNA.

BY HENRY A. PILSBRY.

The forms described below occurred in a collection of Japanese mollusca obtained by Marshall R. Gaines, President of Tillotson College, Austin, Tex., while resident and engaged in educational work in Japan some years ago.

They were chiefly collected by his pupils; and being accompanied by exact locality data, are a substantial addition to our knowledge of the terrestrial mollusks of Japan.

Diplommatina tenuiplica n. sp.

Shell similar in form, size and external sculpture to *D. collarifera* Schm. and Bttg., but of a reddish brown color, the columellar lamina within the whorl decidedly thinner and weaker, less oblique; lamina within the outer wall (visible through from the outside on the front of the last whorl) distinctly shorter. Crest behind the lip less developed and nearer the lip.

Kashima, Harima (Marshall R. Gaines).

Ennea Iwakawa n. sp. Pl. XXI, fig. 10.

Shell small, cylindrical, with small, deep, circular umbilicus, the latter 3 or $3\frac{1}{2}$ whorls of about equal diameter, those above convexly tapering; white; surface sculptured with numerous strong but slender longitudinal laminar riblets, curving to the left above, to the right below, and about 27 in number on the last whorl, absent on the apical $1\frac{1}{2}$ whorls. Whorls $6\frac{1}{2}$, slightly convex, the last tapering below, obtusely keeled at the base. Aperture small, subtriangular, wider above; peristome continuous, narrowly reflexed, emarginate at the position of the parietal lamella, the outer lip with a short rounded sinus above; the cavity contracted by an oblique, deeply placed fold on the columella, two nodular teeth upon the outer lip, the upper one submarginal, the lower further within, and a long, high sinuous parietal fold, which runs about one-half of a whorl inward, bending to the left a short distance within.

Alt. 3.2, greatest diam. 1.5 mm.; length of mouth 0.8 mm.

Named in honor of Mr. T. Iwakawa, the author of a meritorious essay upon the Japanese species of *Viviparus*.

Eulota (Acusta) Gainesi nom. nov.

Helix lata Gld. 1859, not *Helix lata*. Pfr. 1854. *Vide* Novitates Conchologicæ, pl. 143, figs. 17, 18, 19.

This species differs from the typical forms of the subgenus *Acusta* in having the peristome distinctly reflexed in adult examples. The figures cited above, represent a specimen not quite mature and less strongly wrinkled than my type. The color is either olive brown or olive yellow without bands, or varied by two broad bands. The interior of the aperture is blue gray, the columella pinkish lead color, pale pink at the outer edge, like the whole outer lip. The surface is glossy, coarsely wrinkled along the lines of growth, showing spaced engraved spirals under the lens, and an extremely minute, dense criss-cross scratching throughout when not obliterated by wear. Whorls $5\frac{1}{2}$.

Alt. 27, diam. 32 mm.; aperture 22 mm. long, 20 wide (measured outside peristome).

Ushika, Prov. Tishio.

Eulota luna n. sp. Pl. XXI, figs. 1, 2, 3.

Shell low-conic above, flattened below, with a large well-like umbilicus, one-eighth the diameter of the shell, very slowly contracting as it penetrates; white under a thin, pale yellow cuticle, with two narrow chestnut bands, one above, the other below the periphery, the former visible above the suture on the whorls of the spire. Surface rather glossy, with fine irregular growth wrinkles and some subobsolete spiral lines above. Spire conic with convex lateral outlines. Whorls $6\frac{1}{2}$, slowly, regularly widening, convex, the last rather more descending, with rounded periphery and base, not deflexed in front. Aperture oblique, lunate oval; peristome acute, outer margin slightly and the basal more expanded, dilated at the columellar insertion, impinging upon the umbilicus.

Alt. $16\frac{1}{2}$, greatest diam. $20\frac{1}{2}$, least $19\frac{1}{2}$ mm.

Yurdamisawa, Prov. Ishikari (Gaines).

This species, while probably a *Euhadra*, does not belong to the *luchuana* group. It reminds one of *Pyramidula solitaria* (Say).

I do not know of any closely allied Japanese species.

Eulota (Ægista) aperta n. sp. Pl. XXI, figs. 7, 8, 9.

Shell perspectively umbilicate, the umbilicus exceeding one-fourth the diameter, at first rapidly widening, showing much of the penultimate whorl, then gradually narrowing. Corneous brown. Surface dull, with fine wrinkles of growth, bearing cuticular laminæ which are in large part rubbed off in the specimens described, and under a lens fine subobsolete spiral striæ may be seen on the base, at least in places. Spire low conoidal with slightly convex lateral outlines. Whorls $5\frac{1}{2}$, moderately convex, slowly increasing, the last decidedly wider, rounded at the periphery and beneath. Aperture quite oblique, subcircular, but little excised by the penultimate whorl; peristome thin, very slightly expanded, more so below and on the columellar margin, the latter scarcely dilated at the insertion.

Alt. 8.4, greatest diam. 14.2, least 12.3 mm.; length and width of aperture 6.2 mm. (including peristome).

Toyonishikami, Prov. Nagato (Gaines).

This is one of those Japanese *Helices* of uncertain position, with the peristome less developed than in *Ægista*, more as in the European "Fruticicolas." It is distinguished by the large umbilicus and the minutely shaggy cuticle. It has the form but not the texture or color of *Helix macrocycloides* Kobelt.

Eulota caviicollis n. sp. Pl. XXI, figs. 11, 12, 13.

Shell openly and deeply umbilicated, the umbilicus ample, showing all the whorls, its diameter contained $3\frac{1}{2}$ or four times in that of the shell. Corneous brown. Surface dull, when quite unworn clothed above with short compressed cuticular laminæ which gather and hold dirt, but usually these are worn off, leaving the surface finely striated, the striæ a little stronger toward the sutures, base smoother. Spire elevated, the lateral outlines convex. Whorls $6\frac{1}{2}$ to $7\frac{1}{3}$, very narrow, closely coiled, slowly widening, the last one abruptly and very deeply deflexed in front, constricted behind the peristome. Aperture nearly horizontal, truncate oblong; peristome thin, narrowly reflexed throughout, the upper margin of the outer lip somewhat straightened or sinuous.

Alt. 4, greater diam. $6\frac{1}{2}$, lesser 6 mm.

Alt. 4.7, greater diam. 6, lesser 5.7 mm.

Kyoto (Marshall R. Gaines).

A very peculiar little shell, not like anything hitherto reported from Japan, and probably typical of a new subgenus which pending anatomical details may be subordinated to *Eulota*, and thus defined: *Cœlorus*, n. s.-g. Mound-shaped, with numerous narrow whorls, ample umbilicus, and subhorizontal aperture with thin, reflexed, discontinuous peristome.

Eulota rudis n. sp. Pl. XXI, figs. 4, 5, 6.

Shell depressed-conoid, umbilicated, the umbilicus a little over one-fifth the diameter of the shell, rather narrow within, rapidly expanded at the last whorl. Solid; dull reddish brown, with irregular whitish lines and some darker streaks. Surface irregularly striated, the striæ stronger at the margin of the umbilicus. Spire conoidal. Whorls $6\frac{1}{3}$, slowly widening, the last whorl rather wider, decidedly descending in front, somewhat tubular. Aperture oblique, rounded, slightly excised by the penultimate whorl; peristome a trifle thickened, the outer lip somewhat expanded, basal and columellar margins more expanded; terminations considerably approaching.

Alt. 11, greater diam. 14, lesser 12.5 mm.; width of aperture 6.5, oblique height 6 mm.

Omi, Japan (M. R. Gaines).

A rude-looking, dark reddish shell, with somewhat the aspect of a *Pyramidula*. I know of no closely allied species.

Ganesella satsuma n. sp. Pl. XXI, figs. 20, 21, 22.

Shell globose trochiform, narrowly and obliquely perforate, thin, translucent, the internal pillar faintly visible through its substance; whitish-corneous, tinted a little with brown on the base. Surface rather glossy, with light, irregular growth wrinkles, cut by fine, close incised spirals which are distinct on the earlier, subobsolete on the last whorl. Spire elevated, with convex lateral outlines. Whorls $6\frac{1}{3}$, convex, slowly widening, the last distinctly though shortly deflexed in front, rounded at the periphery, convex beneath, indented around the axis. Aperture oblique; peristome white, expanded, thickened within, the basal and columellar margins reflexed; basal margin straightened, sloping, with a slight callus within; columellar margin very short, subvertical, concave, dilated and nearly closing the umbilicus, which it wholly conceals from below.

Alt. 19, greater diam. 19, lesser 17 mm.

Kyoto (Marshall R. Gaines).

Closely allied to *G. japonica*, and to some extent a transition species between the *japonica* and the *papilliformis* groups of *Ganesella*. It differs from *G. japonica* in the greater elevation, completely rounded periphery and almost closed umbilicus.

Ganesella ferruginea n. sp. Pl. XXI, figs. 14, 15, 16.

Shell shaped much like *G. japonica*, russet brown, paler near the suture and outer lip, girt at the periphery with a chestnut band bordered below by a corneous one; umbilicus pale corneous within. Surface slightly shining, striatulate, seen under a strong lens to be covered with a dense fine granulation, the granules point-like, in places arranged in oblique rows sweeping nearly at right angles with the growth lines, but on the base this arrangement is nearly lost. Spire convexly conic; whorls $5\frac{1}{2}$, the last rounded at the periphery and beneath, hardly deflexed in front. Aperture oblique, the lip expanded, thickened within, white; basal lip reflexed, straightened, with a slightly convex callus within; umbilicus deep, moderately wide, about one-third covered by the dilated columella.

Alt. 13, greater diam. $17\frac{1}{2}$, lesser $16\frac{1}{2}$ mm.

Okayama, Prov. Bizen (Gaines).

Similar to *G. japonica*, from which it differs in the russet color and minute sculpture.

Ganesella heteroglypta n. sp. Pl. XXI, figs. 17, 18, 19.

Shell somewhat trochiform, narrowly and almost closed umbilicate, thin, somewhat translucent, yellow-corneous, with a slight olivaceous tint, a faint darker peripheral band, light-bordered below. Surface with a dull silken lustre, produced by a clothing of microscopic papillæ or low elongated granules, irregularly and densely placed. Spire elevated, with convex outlines. Whorls fully 6, moderately convex, swollen just below the sutures, the last whorl obtusely angular at the periphery, becoming rounded on the latter portion, convex beneath, very slightly deflexed in front, and constricted behind the peristome. Aperture oblique; outer lip expanded, thickened within, basal lip reflexed, straightened, calloused within; columellar lip very short, dilated, nearly covering the umbilicus.

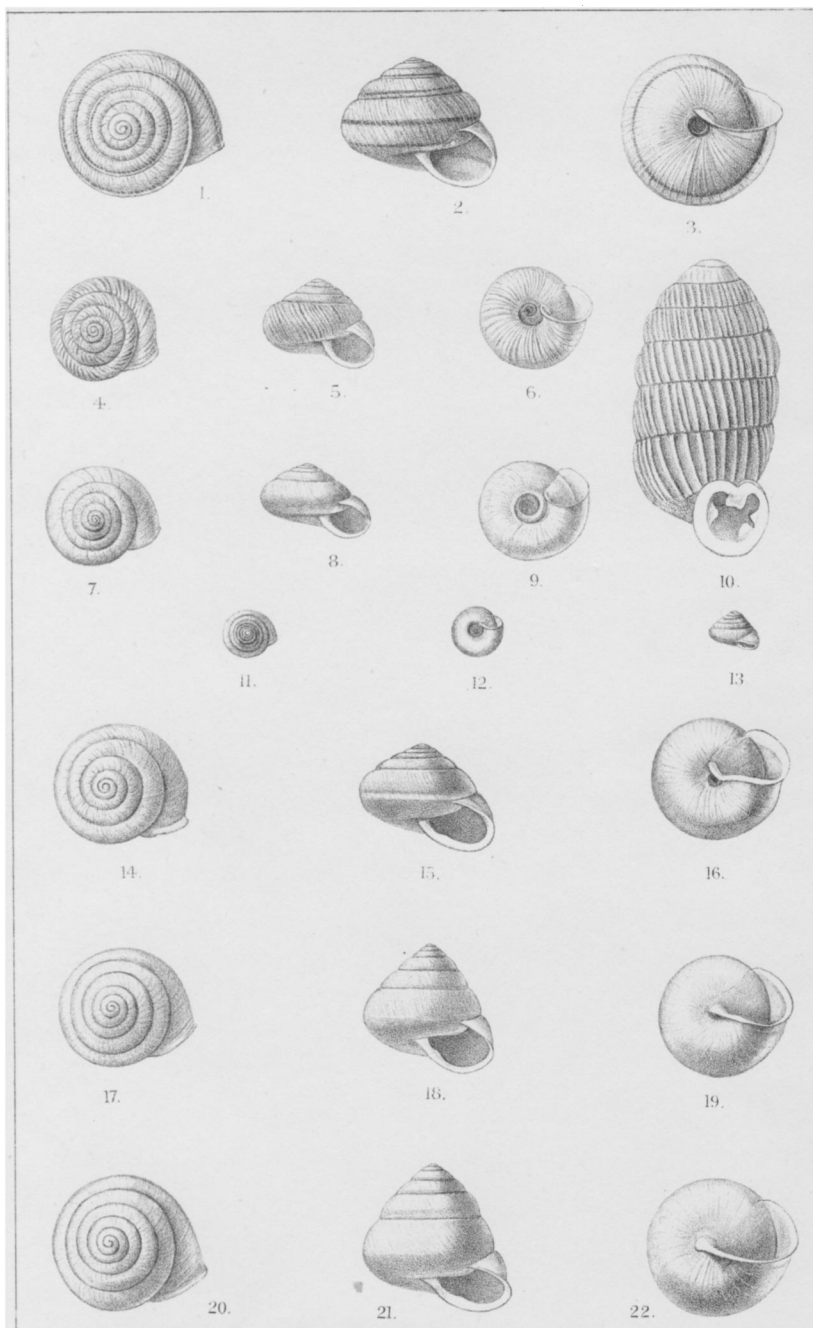
Alt. $16\frac{1}{2}$, greater diam. 17, lesser 15 mm.

Fukura, Prov. Awaji (Gaines).

Like the two preceding species, this is allied to *G. japonica*, having the same form of aperture. It differs from *G. satsuma* chiefly in the fine sculpture, which consists of a dense granulation, without spiral incised lines. It differs from *G. japonica* in sculpture and the reduced umbilicus; from *G. ferruginea* in the pale coloring, small umbilicus and different sculpture.

EXPLANATION OF PLATE XXI.

- Figures 1 – 3. *Eulota luna*.
4 – 6. *Eulota rudis*.
7 – 9. *Eulota* (*Ægista*) *aperta*.
10. *Ennea Iwakawa*.
11–13. *Eulota* (*Cælorus*) *cavicollis*.
14–16. *Ganesella ferruginea*.
17–19. *Ganesella heteroglypta*.
20–22. *Ganesella satsuma*.



PILSBRY. JAPANESE LAND SNAILS.